DOCUMENT RESUME

ED 459 713 IR 058 207

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TITLE	Information Literacy and Academic Libraries: The SCONUL Approach (UK/Ireland).
PUB DATE	2001-08-00
NOTE	12p.; In: Libraries and Librarians: Making a Difference in the Knowledge Age. Council and General Conference: Conference Programme and Proceedings (67th, Boston, MA, August 16-25, 2001); see IR 058 199.
AVAILABLE FROM	For full text: http://www.ifla.org.
PUB TYPE	Reports - Descriptive (141) -- Speeches/Meeting Papers (150)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Academic Libraries; Foreign Countries; Higher Education; *Information Literacy; *Information Skills; *Information Technology; Library Associations; Models; National Libraries; *Skill Development
IDENTIFIERS	*Standing Conference National University Libraries; United Kingdom

ABSTRACT

Discussions of "skills" in higher education often conflate "information technology (IT)" skills and "information skills". The second term is broader and more directly related to the aims and processes of higher education as a "knowledge creation" activity. A clear distinction should be made between information skills and IT skills. Both information skills and IT skills are essential parts of a wider concept of information literacy. A broadly-based definition of information skills in higher education reflects twin dimensions of the "competent student" and the "information literate" person. For the development of the information literate person, the United Kingdom's Standing Conference of National and University Libraries (SCONUL) proposes seven sets of skills developing from a basic competence in library and IT skills. These include the ability to: (1) recognize a need for information; (2) distinguish ways in which the information gap may be addressed; (3) construct strategies for location information; (4) locate and access information; (5) compare and evaluate information obtained from different sources; (6) organize, apply, and communicate information to others in ways appropriate to the situation; and (7) synthesize and build upon existing information, contributing to the creation of new knowledge. (Contains 14 references.) (Author/MES)

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ED 459 713

67th IFLA Council and General Conference August 16-25, 2001

Code Number: 016-126-E
Division Number: VII
Professional Group: User Education
Joint Meeting with: -
Meeting Number: 126
Simultaneous Interpretation: No

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Information literacy and academic libraries: the SCONUL approach (UK/Ireland)

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U.S. DEPARTMENT OF EDUCATION
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Abstract:

Discussions of 'skills' in higher education often conflate 'information technology' skills and 'information skills'. The second term is broader and more directly related to the aims and processes of higher education as a 'knowledge creation' activity. A clear distinction should be made between information skills and information technology skills. Both information skills and information technology skills are essential parts of a wider concept of information literacy. A broadly-based definition of information skills in higher education reflects twin dimensions of the 'competent student' and the 'information literate' person. For the development of the information literate person SCONUL proposes seven sets of skills developing from a basic competence in library and IT skills.

Information skills in higher education: a SCONUL Position Paper

Executive summary

1 Discussions of 'skills' in higher education have hitherto conflated 'information technology' skills and 'information skills'. The latter term is much broader and more directly related to the aims and processes of higher education as a 'knowledge creation' activity. A clear distinction is made between information skills and information technology skills.

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2 Both information skills and information technology skills are seen as essential parts of a wider concept of information literacy.

3 A broadly based definition of information skills in higher education reflects twin dimensions of the 'competent student' and the 'information literate' person.

4 For the development of the information literate person a model is proposed based on seven sets of skills developing from a basic competence in library and IT skills. The model attempts to address the key question of different levels of higher education work.

5 There is evidence of recent growth of activity in UK institutions in the area of information skills development.

6 It is proposed that the development of the idea of 'information literacy' requires a collaborative and integrated approach to curriculum design and delivery based on close co-operation between academic, library and staff development colleagues.

7 It is recommended that institutions consider more explicitly, as part of the development of learning and teaching strategies, the size and scope of their own approach to information handling skills. Good practice from institutions at home and abroad should be more widely studied.

8 It is recommended that higher education in the UK should be more proactive in contributing to the debate about the learning implications of an 'information society'.

Background and genesis of this paper

1 In December 1998 a Task Force was convened by SCONUL's Executive Board to prepare a statement on the topic of information skills for higher education students. The purpose of such a statement was to stimulate debate about the place of information skills within the context of current activity surrounding 'key skills', 'graduate-ness', and lifelong learning.

2 We are all experienced professionals with many years of work in higher education in a diverse range of institutions. A wide interpretation of the topic was devised to allow the Task Force to explore the different interpretations and issues. It became clear in the process that the United Kingdom has less clearly developed thinking in this area than many other countries which have been addressing the implications of the 'Information Society' more fundamentally.

3 We considered the following questions:

- Why are information skills important?
- How can information skills be defined?
- What is the size and scope of current activity in UK higher education with regard to information skills?
- Are there principles of good practice in this area, within UK higher education, and from other countries?

The structure of this paper broadly follows the four topics identified above, but initially we felt it important to consider the issue of the relationship between *information technology* skills and *information handling* skills. Much of the published discussion about skills work appeared to conflate the two, and this was a starting point for our work.

Information skills or information technology skills?

4 A recent paper by Sheila Corrall, Librarian of the University of Reading (1998), was a basis for our early discussions. This paper had highlighted the lack of consideration given to information skills in many of the recent publications and discussions concerning the 'key skills' area. The report of the National Committee of Enquiry into Higher Education (the Dearing Report, 1998), had emphasised the importance of skills which are 'key to the future success of graduates whatever they intend to do in later life' and had identified a list of four – communication skills, numeracy, the use of information technology, and learning how to learn. Corrall also reviews other such lists, which whilst sometimes expanding the *number* of skills, largely omit any explicit consideration of information skills.

5 This is in contrast to work in other educational sectors. For example, the work of BECTA has gone a long way to establishing information skills as a recognised aspect of the national curriculum for primary and secondary schools (see BECTA website, listed under 'References' at the end of this paper).

6 Corrall draws distinctions between IT skills and 'information handling skills'.
IT skills include

- Basic skills (use of keyboard, mouse, printer, file/disk management)
- Standard software (word processing, spreadsheets, databases, etc.)
- Network applications (electronic mail, Internet, web browsers).

Information *handling*, defined by Corrall, includes information sources, evaluation criteria, navigation methods, manipulation techniques, and presentation issues.

7 This kind of distinction is supported by others, who also challenge the tendency to equate computers with information, and hence to mistake computer literacy for information literacy. 'This is a dangerous myth, for it assumes that information is only that which is storable and manipulable in a computer' (Taylor, 1986).

8 This is not to say that *information technologies* are not crucial elements within modern day information handling. Information technologies enable us to access information resources. Information systems organise information resources to make them readily accessible. People need to understand how these systems are organised and how they can be accessed – this is a generalist requirement rather than limited to a cadre of specialists.

Why are information skills important?

9 The advent of the internet along with various other electronic and digital resources has highlighted the issues. Some undergraduates are using the internet as their first port of call beyond the reading list. They need to address questions relating to the provenance, accuracy and reliability of the material, which are largely unnecessary in established areas of academic publishing. The information in books, journals and other printed forms, has been

subject to a variety of quality assurance processes - reputable publishers, authors with academic credentials, texts recommended by tutors, careful library spending to ensure a match of material to need. With the internet sources, none of the quality assurance mechanisms can be assumed. The onus is on the user to apply a critical faculty.

10 Information technology has made information superficially much easier to access and use. By reducing all information to a standard format (increasingly the web page) it masks the differences in the way in which information is generated, and differences in the *kind* of information it is supplying.

11 The internet brings new ethical dimensions too, with difficult questions of ownership of information and copyright, and the potential for plagiarism.

12 The study by Kathryn Ray and Joan Day on 'Student attitudes towards electronic resources' (1998) found that that it is 'apparent that large numbers of students....are leaving university without the necessary transferable skills to cope in an information based society'. BECTA have stated the need 'to make students critical consumers of information' (see References). In the USA an influential report by the American Library Association (Report of the Presidential Committee, 1989) emphasised 'the need for all people to become information literate, which means that they are not only able to recognise when information is needed, but also able to identify, locate, evaluate and use effectively information needed for the particular decision or issue at hand' (ALA web site). In the USA a National Forum for Information Literacy has been established with representation from a wide range of educational organisations.

13 Taking the idea further, some commentators see what is called 'information literacy' being something which enables individuals not only to use information and information technology effectively and adapt to their constant changes but also to think critically about the entire information enterprise and information society. (Shapiro & Hughes, 1996). The paper draws a parallel between the modern 'information literate' person and the long-held idea of the 'educated' person. Another writer (Doherty, 1999), describing information as an 'essential commodity for survival', states 'It is our intention to teach our users to become independent and informed information consumers on their way to becoming lifelong learners'.

What are 'information skills'?

14 Within higher education there are two strands to this question:
(a) the strand relating to 'study skills' which students will need to call upon in the process of undertaking study at a higher education level - a 'tool' for the 'job' of being a learner
(b) the strand which is about students being prepared to take their part fully in whatever subsequent occupation/employment/activity they may choose upon leaving higher education.

15 Strand (a) includes such skills as being able to use an institutional library and its resources to further one's studies, being able to perform 'literature searches' to whatever depth and complexity is required for a particular curriculum/discipline area, and being able to demonstrate this to the satisfaction of tutors and assessors in whatever form necessary by means of citations and references to reading and information gathered. This approach supports the idea of a 'competent student' – one who is able to function effectively as part of the academic community.

16 In strand (b) above, one might more broadly define 'information skills' as including, in addition to those already listed, attributes of awareness and understanding of the way in which information is produced in the modern world, critical appraisal of the content and validity of the information (linking with elements of critical thinking more generally), some practical ideas of how information in the real world is acquired, managed, disseminated and exploited, particularly with knowledge of how appropriate professional groups use information in the workplace, in business, and in the world of culture and the arts. This 'information' may be textual and published information but will also include other forms of information communication, both formal and informal, designed and fortuitous, interpersonal and via information technologies in a much more encompassing way. For this level of information skills, the adoption of the term 'information literacy' is appropriate.

17 We carefully considered a number of previously published definitions of information skills. The seven 'headline' areas below represent a synthesis of those which we felt best represented our own views. Where appropriate the headline skill is followed by examples of the kinds of specific activity or competence which illustrate the application of the skill.

The seven headline skills

1 The ability to recognise a need for information

2 The ability to distinguish ways in which the information 'gap' may be addressed
- knowledge of appropriate kinds of resources, both print and non-print
- selection of resources with 'best fit' for task at hand
- the ability to understand the issues affecting accessibility of sources

3 The ability to construct strategies for locating information
- to articulate information need to match against resources
- to develop a systematic method appropriate for the need
- to understand the principles of construction and generation of databases

4 The ability to locate and access information
- to develop appropriate searching techniques (e.g. use of Boolean)
- to use communication and information technologies, including terms international academic networks
- to use appropriate indexing and abstracting services, citation indexes and databases
- to use current awareness methods to keep up to date

5 The ability to compare and evaluate information obtained from different sources
- awareness of bias and authority issues
- awareness of the peer review process of scholarly publishing
- appropriate extraction of information matching the information need

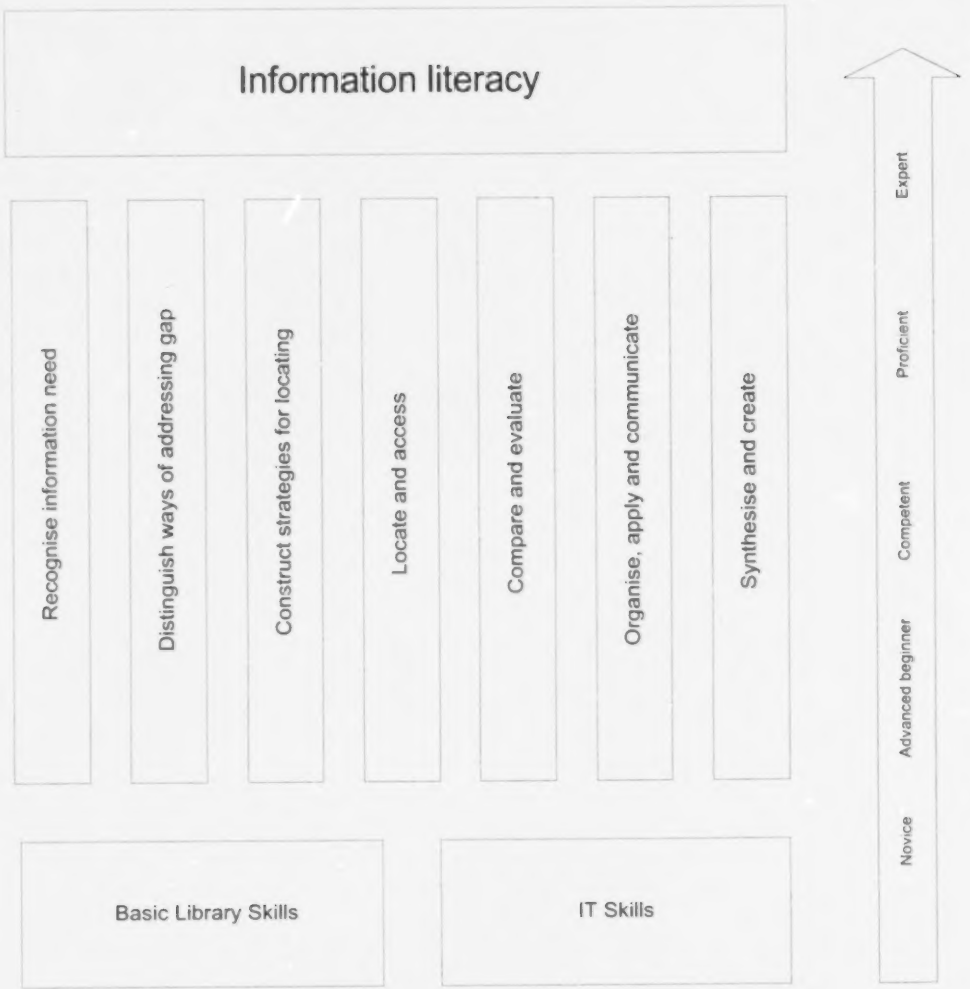
6 The ability to organise, apply and communicate information to others in ways appropriate to the situation
- to cite bibliographic references in project reports and theses
- to construct a personal bibliographic system

- to apply information to the problem at hand
- to communicate effectively using appropriate medium
- to understand issues of copyright and plagiarism

7 The ability to synthesise and build upon existing information, contributing to the creation of new knowledge

18 The information skills model (see diagram) attempts to show diagrammatically the relationships between the 'competent information user' at the base level (strand (a) above), and the much more advanced idea of information literacy. The 'pillars' show an iterative process whereby information users progress through competency to expertise by practising the skills. Only those at the higher end will be practising the seventh skill level.

Information skills model



19 At the base of the model are the twin fundamental building blocks of basic library skills and basic IT skills. The former is very much apparent in the user education programmes of academic libraries, the latter can be seen in developments such as the European Computer Driving Licence. Between the base and the higher level concept of 'information literacy' appear the seven headline skills and attributes, the iterative practice of which leads from being a competent user to the expert level of reflection and critical awareness of information as an intellectual resource. The progression from novice to expert is indicated by an arrow. First year undergraduates will largely be at the bottom of the arrow, perhaps only practising the first four skills, whilst postgraduate and research students will aim to be towards the expert end, and will be aspiring to the seventh.

20 We felt that, within higher education, information literacy should include the notion of an individual who is able to contribute to the synthesis of existing information, to further develop ideas building on that synthesis, and, ultimately, create new knowledge in a particular subject discipline.

What is the size and scope of work currently going on in higher education institutions?

21 'There are few academic library services that do not now regard the teaching of information skills as an important part of their mission' (Biddiscombe, 1999). This is evident from recent trends of activity in this area of work, identified from data supplied by the Library and Information Statistics Unit at Loughborough University. The average number of hours spent by library staff providing orientation and post-orientation for students in SCONUL institutions has increased over the last six years from 13 hours to 22 (per 100 fte students). There are variations within this, for example, in 'new universities' the figures are 22 and 28 respectively, whilst for CURL (Consortium of Research Libraries) institutions the figures are 6 and 17. Though the amount of 'teaching' varies from institution to institution the trend is very clear. The number of users receiving orientation or post-orientation sessions is increasing overall from 36% to 46%, while appearing to be constant in the 'new' universities at 60%.

22 Institutions are also engaged in information skills work as part of training programmes for teaching staff.

23 We sought views on the reasons for the increases by means of an informal e-mail-based survey, and a summary of results is given in Appendix 1.

24 Whilst the size of activity is impressive in itself, and is growing, its scope falls some way short of a coherent approach to the development of 'information literate' people. Much is left to the initiative and actions of small groups of interested staff (both librarians and subject teachers), working in pockets and with no overall framework.

25 Those library and information staff involved in training are principally 'subject librarians' or equivalent. Some universities now see this as a major part of the work of a subject librarian. Some institutions have established within their structures 'information services' elements with a clear remit for user support and training.

26 The greater part of those replying to the informal survey perceived no current need for staff involved in this area of work to engage in formal training themselves for its delivery. In a

significant number of services, however, there is a clear intent that the library staff should 'have teaching and learning know-how'. The number of staff who are already teacher-trained varies from institution to institution. Several of the replies mentioned the Edulib eLib programme (part of the Electronic Libraries programme funded by the UK higher education funding bodies' Joint Information Systems Committee) as being useful in placing their teaching work in a context of theory and accepted educational good practice.

27 Several survey respondents perceived that the advent of the Institute for Learning and Teaching will have an impact on library and information staff as well as subject teachers. 'Until recently most librarians had seen their training role as a minor part of their professional activities and consequently felt little need to intellectualise the process' writes Richard Biddiscombe (1999) and goes on to describe the likely change in relationship which may come when teaching staff find themselves being taught by librarian colleagues as part of formal teaching qualification programmes in higher education. 'Meeting the learning needs of the probationary lecturers enrolled on the course will not only be important, it will change the relationship of information professionals to academic staff in new and subtle ways'. One respondent to the survey stressed that this approach to supporting students (i.e. through the subject tutors themselves being better equipped to assist students with the development of such skills) as both more effective and more feasible in terms of staff/student ratios.

Good practice in the UK and abroad

28 Where there is diversity of practice and context it can be difficult to present a clear picture of good practice. Some key elements have emerged. Both the literature and practitioners support the absolute necessity of information skills work being integrated into the subject curriculum.

29 It is noteworthy in this respect that the subject benchmarking work carried out recently for the Quality Assurance Agency for Higher Education includes recognition of the importance of information handling elements which are in accord with the subject disciplines concerned. (QAA Draft Statement Benchmark standards for Chemistry, History and Law, 1999)

30 This point is also apparent from developments in other countries. In the USA and in Australia there are examples of initiatives in particular universities towards a strategic approach to information literacy development. We were impressed by the work of Griffiths University, Australia, in developing an 'Information Literacy Blueprint'. This stresses the necessarily collaborative nature of such an approach. 'Information literacy education...is the shared responsibility of all educators and information providers' (Griffiths 'Blueprint'). The document goes on to state 'Effective information literacy education depends upon co-operation between information specialists and discipline experts to achieve curriculum innovations which foster information literacy'.

31 Other principles which might be supported include

- That information skills programmes should aim to cater appropriately for all kinds of learner at all the various levels of learning
- Programmes should have clear aims and be based on sound pedagogic foundations
- Programmes should have quality and feedback mechanisms built in

- Programmes should attempt to measure initial and exit competence, and can thus demonstrate impact
- Programmes should be managed effectively and delivered cost-effectively
- Programmes should make valid use of new technology and other innovations

In many of these principles there is no distinction between information skills programmes and any other learning provision.

32 Integration of information skills across the curriculum requires university and course leaders, lecturers, staff developers and library and information staff to work collaboratively. The Chief Executive of the Universities and Colleges Staff Development Association (Pennington) in welcoming the work of the Task Force, endorsed this approach. The establishment of the Institute for Learning and Teaching, with its aim of providing an inclusive professional body for all who teach and support learning, provides an ideal context in which integrative work such as is required for information literacy can be both enabled and recognised.

33 Libraries are involved in a number of ways – in terms of resourcing the relevant materials, facilitating the use of those materials, as well as in providing a collaborative focus for partnerships. The effectiveness of the library should be promoted and evaluated in new ways, for example in terms of impact on educational and research outcomes, in recognition of this new dimension.

Some questions for institutions to consider further in their own context

- To what extent are current or developing institutional strategies for learning and teaching seen to incorporate the underlying principles of 'information literacy' among their students and staff?
- To what extent is the work currently being undertaken within the institution with regard to information skills deemed to be meeting, or be capable of meeting, the requirement for the development of the information literate student at the various levels identified?
- Are enabling mechanisms in place to promote co-ordination and collaboration between those who have an interest in developing these higher level skills in students and staff?
- At a course or programme level, do existing mechanisms for review of curriculum design facilitate the incorporation of ideas about 'information literacy' development?
- Is the higher education community in the UK contributing as actively as it might to the debate about the implications of the need within an 'Information Society' for informed and information literate constituencies?

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